

TOWARD A 'CONTROL' SYSTEM FOR INDUSTRIAL RELATIONS*

By Conrad M. Arensberg

With the publication of 'Management and the Worker,' by F. J. Roethlisberger and William J. Dickson, the story of the now famous Hawthorne experiments of the Western Electric Company is complete. Now that the story is all in, it is instructive to take stock of the position to which the experiments have advanced the theory and practice of industrial relations and to ask what the next step is to be. If there is to be a next step, the authors and researchers of the studies reported in 'Management and the Worker' can count it as their reward for a long labor well done.

The book itself puts the challenge - what next? The authors could hardly have chosen a better title for it. It is in itself a manual of nearly all the scientifically verified knowledge on its subject that exists in the year 1940. The book is the comprehensive report of the long-term research into human relations, morale, and efficiency in the workroom carried on by the company over the years from 1927 to 1938. Much of the research is already well known and has been reported before in various places. Still, in total, it stands as a rare combination of detached scientific inquiry and hardheaded, practical search for a workable program. 'Management and the Worker' has the great merit of pulling the whole story together and showing the successive stages of development through which the researchers progressed in the interpretation of their often unexpected results. But it also presents in detail much important work not reported in full before, and welds the theoretical and practical knowledge finally gained from the research into an organized operating procedure for passing information up the line to management. It is an honest, painstaking story, in the best tradition of research.

Where Does Hawthorne Research Lead?

Now that this story is complete, let us take a look at it. There is more than enough in it to serve as a guide for the executive of management, the engineer and expert technician, and the student of industrial psychology and organization. The book sums up the results obtained from the studies made, in the relay-assembly rooms, on the effects of such

controllable factors as illumination, rest periods, hours of work, and wage incentives, upon individual output, efficiency, and morale. This is the material already given in great detail in the work of T. N. Whitehead, entitled 'The Industrial Worker' and reviewed in the December, 1938, issue of *MECHANICAL ENGINEERING*. It is instructive to see it here in the perspective of the whole research and to follow the further inquiry to which it leads.

It is this further inquiry, dealing directly with the implications of the study of physical factors controlling employee output and morale, to which managers, engineers, personnel men, and students of industrial psychology and organization can most fruitfully turn their attention. It will be remembered that the result of the study of the effects of physical factors was to demonstrate the impossibility of appraising them with any certainty unless social and psychological factors were taken into account. Through statistical and correlative techniques, output records were shown to reveal, not so much the influence of changes in the controllable factors in the experiments, as the effect of change in social relations and social attitudes among the personnel of the working groups. The significant factors correlated with increased output turned out to be, not the experimentally varied ones subject to the direct control of management and technicians, but the more intangible ones beyond immediate experimental control. These were the influences springing out of the often unconscious, informal habits and adjustments made by the employees in their relations among themselves and with their supervisors in the workroom. The remarkable correlations of output and social relations among the five girls of the relay-assembly room, later further exemplified in other test groups, raised theoretical and practical problems needing immediate solution. Whatever the connection of cause and effect between better physical working conditions, incentive schemes, shorter hours of work, rest pauses, and other measures combating fatigue and monotony, on the one hand, and increased output and morale on the other, it expressed itself only in correlation with satisfactory human relations. The evidence was that these human relations, if they were to be anything at all, were to be found in the conditions of mutual adjustment among the members of the working group. The next problem of research, therefore, was to isolate, describe,

*NOTE. This review first appeared in *Mechanical Engineering*, Volume 62, Number 5, May 1940. It is reprinted here because of its special interest for a totally different audience.

and interpret for practical use the social situation in which the workers moved and upon which changes in physical factors impinged.

What Do Personal Interviews Reveal?

Another part of the Hawthorne researches bore out this conclusion. 'Management and the Worker' reports in full the experience of the company in interviewing some 20,000 of its employees and a large number of its supervisors of varying ranks. Made back in 1928, this was one of the first large-scale attempts at sounding out employee attitudes. It yielded many interesting results, many of which have already become matters of fairly common knowledge. But the most interesting result was probably a better understanding of what interviewing reveals and how to interpret the attitudes interviewing turns up.

Like the experimental studies, the interviews revealed the necessity of having a means of dealing with the social situation. They indicated that employee attitudes must be understood in terms of the context in which the employee thinks, which is in turn the 'human' situation in which he acts, in his relations, that is, with his fellows in the workroom, his immediate supervisors, his actual associates at work and outside of it. What a man says to an interviewer, once his confidence is won, cannot, ordinarily, be treated, to any useful purpose, as a reasoned conclusion or a factual report. What he tells is an expression of his present experience of the concrete events of the day-to-day relations between himself and his group of fellow workers and his immediate supervisors in the workroom.

What he gives the interviewer is a reflection of his own and his fellows' sentiments, fears, pre-occupations, and past experience. In many instances, the lesson of interviewing in psychology was borne out in the attitudes got from employees. Complaints, grievances, comments, and suggestions, made in the interviews, referred not so much to their ostensible object as to some preoccupation arising out of personal emotional disturbance. The source of this disturbance might be either in the work situation or outside the relationships of life in the company altogether. But in either case, it operated to color the employee's understanding and reception of company procedures, policies, and personnel, and to affect the employee's output and morale, on a directly personal basis. In many cases the experience of clinical interviewing seemed to be borne out; the mere process of interviewing, 'getting it off one's chest,' seemed to help an individual to make an adjustment. In others a knowledge of how matters

fitted specifically into the sentiments and experience of the individual could be used to effect beneficial changes. But in all cases the source of the individual's attitudes was to be found in his personal situation at work and outside it. Insofar as his personal situation referred to his work, it could only be described by reference to the actual conditions of mutual adjustment between the individual and his fellow workers and immediate supervisors in the workroom.

To get at the source of worker attitudes, therefore presented the same problem as did the search for the effects of experimentally controllable factors on output and morale. There must be some objective method for discovering, describing, and keeping a check on the social situation in which the workers move on the job.

Studying Human Relations 'On the Job'

The last part of the book tells us how this problem was tackled. It reports a detailed study of a shop, the bank-wiring room, with the express purpose of dealing squarely with 'human relations' on the job and reducing them to an orderly process of observation, description, and analysis of results. Ordinarily, engineers and others with a background in the natural sciences have been leery of the realm of social relations. There seems to be nothing concrete to record and measure, and nothing objectively ascertainable with which to deal. The social sciences have not been of much help, for they deal either with large-scale statistical trends, or they are still wrestling with the preliminary problems of definition and classification. Furthermore there is no common set of conventions or common vocabulary of terms for describing, counting, and correlating what takes place in 'human situations' comparable to those the long history of science has built up in, let us say, the physical or chemical fields.

The lack of these things was not allowed to hold up the researchers in their attack on their problem of the effect of 'employee interrelations and group organization' on the job. Part of an ordinary shop department was segregated as an experimental situation and an observer placed in it. Otherwise there was no change made. The observer was to interfere with nothing and to exercise no authority of any kind. He was only to observe what took place among the persons in the room. Except for that, the ordinary current of departmental work carried on. The departmental group payment system continued unchanged; the usual output and efficiency records were kept.

But a continuous record of all individual activity of every kind was kept: Conversation, horse-

play, mutual aid, infringement of company rules, contacts with supervisors, and anything else in the way of activity in which one of the group affected another, was put down in orderly, chronological fashion just as it occurred, without reference to any standard of right or efficient conduct, merely as a description of what actually takes place in a working day in a work situation. These data were arranged according to the roles of the individual workers in them and according to the general kinds of worker reactions and worker notions they seemed to present.

This kind of orderly recording of what actually takes place among human beings in their informal and unguarded moments was, in fact, an adaptation of methods of 'field work' in the branches of social science, like social anthropology, experimental social psychology, and sociometry, which are closest in spirit to the methods of natural science and have so far turned up the most interesting results. It is not surprising therefore that this painstaking observation turned up a wealth of information, which, if not altogether new, especially to those who have taken part in the work-a-day life of industry nevertheless forced a complete re-examination of a great many of the cherished concepts of management in the field of industrial relations.

Importance of First-Line Supervision

This observation laid bare the processes by which, by means of an informal organization and control of one another of their own, the working group restricted output to a figure they felt safeguarded them against rate-cutting or rerating, resisted the impact of technical changes in the job itself upon their established ways of behaving, and forced compromises between their own habits and convenience and the rules and policies of supervision and management. It must be remembered that all these processes were at work in a situation in which output and morale were high, a good day's job was done, though it might not equal the fondest hopes of the expert concocters of theoretical wage-incentive schemes, and as full acceptance of management rules and policies in the workroom was present as can ever be obtained. The chief problem of first-line supervision was well illustrated in this study. To be effective, supervision had to compromise at some point between the policies of management and the demands of the working group among whom those policies were to be enforced. The informal organization the study revealed, thus in fact, included the relations between workers and supervisors, and the most effective supervision seemed to

be that which reconciled the policies of management with the habits of mutual adaptation among the workers.

Conversely, the evidence seemed to be that the supervision which failed to effect such a compromise was a source of antagonism, lowered morale, and increased inefficiency, even though it might be logically acting in what, on the basis of management and engineering logic, ought to be the best way of meeting management's needs for greater output, a greater personal efficiency from the men, and a more willing cooperation in line with their own self-interest. For the study illustrated several truisms of sociological and psychological investigation and showed their great relevance to the practical working problems of industry. People at work in industry act as of the social groups to which they belong and as of their status in them. The logical concepts of management are not necessarily those of the workers, and programs for action, like incentive and efficiency schemes, are never wholly acceptable by those who must work them unless they fit also into the often seemingly illogical sentiments and ruling notions which govern action in the working environment among fellow workers.

Particularly interesting for the engineer working in industry is the evidence, corollary to this, which the bank-wiring room turned up about the effect of the engineer's work. An engineer engaged in making a technological improvement on a work process or introducing a more efficient means of production usually thinks of his work as being directed entirely toward the job, and not toward the workers themselves. But (apart from any question of replacement of men by machines) the bank-wiring-room story shows that this view is not an altogether true one. The evidence makes the 'human element' a pretty tangible thing. The work of the engineer, even if by his own logics it should deal only with the 'job,' in fact has a direct effect upon the habits of mutual adjustment among the working group and thus, whether the engineer wills it or not, sets up a chain of changes in the activity of the workers toward one another and toward their supervisors. And these changes, if they are followed out, result in very concrete reactions of resistance, compensation for disturbance of routines, and mental readjustment of attitudes among the workers as they are informally organized among themselves in the workroom. 'Selling the worker on the change' may well be possible, but only if it is fully known that the change will have such effects, and the effects are allowed to work themselves out without too great interference.

This realization is not altogether new, but it is often forgotten and its implications neglected. In a time when technical advance is the order of the day, and the social situation of the worker at his work is undergoing constant interference with each such advance, much can be done to recognize and assist the inevitable readjustments that must take place, without which no satisfactory working environment can build up among those on the job.

Thus the re-examination of many of the notions of management and technologists about incentives, efficiency, and morale in the work group, to which the bank-wiring-room study led, poses some highly practical questions. It has been said in criticism of the findings that a mere warning that changes of industrial process and management policy have a disturbing effect upon the routines of worker adjustments is of little value. The essence of industrial advance is change and further change. To put it in hard-boiled fashion, one cannot refrain from seeking to install better methods merely because it shakes up old habits. What can be done in such an event?

Function of Personnel Counselors

The final section of 'Management and the Worker' describes a step in the direction of answering that question and points the way for future development. In that section the authors describe a program of 'personnel counseling' now in effect in every department of the company. Trained observers and interviewers, developed out of the working personnel of the company, are placed in each department. They are charged with keeping a running inventory of the social situation in their territories, lending a sympathetic ear to every person who wishes to be 'interviewed,' and interpreting what they see take place among the working group from day to day and what they are told by those who come to them in terms understandable to supervisors and management. These counselors are under seal of secrecy as to the identity of persons, but otherwise they function to pass information up the line about the informal constitution of the working groups they are in contact with, to point out the way in which management policies fit into the actual thinking of the workers, and to advise on the effect of changes upon the habits and adjustments of the workers. They are thus permanent investigators, counselors, confidants, and advisers, passing up information for the guidance of line officers in their dealings with the so-called 'human element.'

In effect then, this program, putting to practical use the theoretical knowledge got from the years of research in the Western Electric Company,

may conceivably be the first step in a possible new development that can combine science and practice in an entirely new field. It is too early to see the full outline of such a development, but it will come. Many persons, learning of the experience summarized in 'Management and the Worker,' have objected that the findings are of no value outside the Western Electric Company itself, because the conditions of the industry are peculiar to itself, and other industries and other concerns have entirely different situations. To make the results useful to these others would require research as long and as costly of time, men, and money as that made at Hawthorne.

A Control System for Human Relations

But surely this is a mistaken criticism. For the chief result of the research is not that such and such conditions turned out to be present at Hawthorne. What the researchers actually found is far less important than the manner in which they found it. They give us the beginning of a procedure for a continuous running inventory of 'control system' for 'human relations' in industry as objective and as accurate and as capable of being used in abstract form as a basis of executive decision, as any similar 'control system' of financial accounting, physical inventory, or production units.

Thus the next step after 'Management and the Worker' has got to be, not a mere imitation of the research done, however sincere the flattery, but a standardization of the kind of evidence that this research and others like it have unearthed. The existence of an informal social organization among workers and between workers and their supervisors has been demonstrated, and its importance as a controlling factor in industrial efficiency, output, and morale can be conceded. All effective industrial relations and personnel programs depend upon communication of information about it up the line.

Most executive 'judgment' is based on an intuitive appraisal of it and, to be 'good judgment,' must take it into account. But without a standardization of this information so as to make it comparable for all departments, all situations, and all businesses and industries, no quick, accurate, and abstract method of inventory will be possible. The next step, therefore, is a uniform system of measurement from which indexes can be constructed and critical points be recognized. The engineer, the man skilled as a diagnostician of workers' social situations, and the executive will be on common ground, when this next step in the direction of a 'control system' for industrial relations is successfully taken.